

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

S  
CONTRCL, R-4  
Insect  
Annual Report, 1949

ANNUAL INSECT REPORT

REGION IV

1949



Copies to:

Mr. Evenden  
Mr. Orr  
Targhee  
Teton  
Caribou  
Bridger  
Manti  
Payette  
Dr. Craighead

8

CONTROL, R-4

Insect

(Annual Report, 1949)

April 3, 1950

Chief, Forest Service  
Washington, D. C.

Dear Sir:

The year 1949 saw the Region faced with an insect infestation situation which had improved in some respects from that of 1948. However, the over-all picture was somewhat more serious than that of the previous year.

The large Targhee-Teton project, including parts of the Targhee, Teton, Caribou, and Bridger forests, where a nearly complete control job was done in 1948, showed a reduction in new attacks per acre, on treated areas, averaging about 75%. In total number of trees to treat, the 1949 project was only 60% of the size of the 1948 project, although the infestation had spread and the area to be treated was therefore larger.

In addition to the Targhee-Teton project, the mountain pine beetle infestation in the lodgepole stands on the Wasatch and Ashley Forests in Northern Utah had more than doubled in size in one year and the Region was confronted with an epidemic of the Engelmann spruce bark beetle which had grown to serious proportions on the Payette forest. These infestations, plus several others of a minor character, were recommended by the Region for control in 1949.

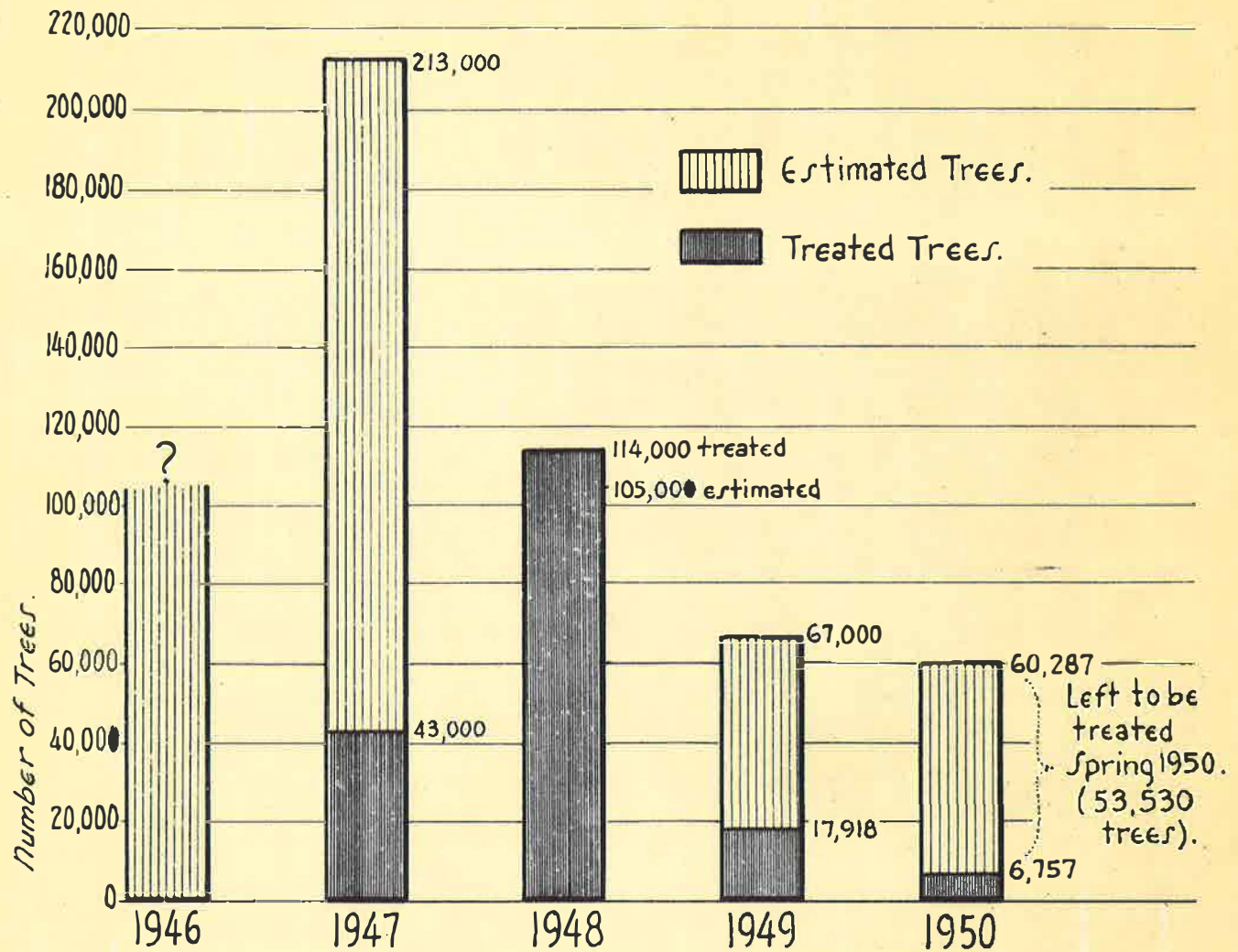
#### CONTROL WORK 1949

The major projects approved for control in 1949 were the Targhee-Teton project and Payette Engelmann spruce project.

#### Targhee-Teton Project

##### History

A brief history of the infestation will help to understand the present situation.



*Includes estimates and trees for both N.F. and Park Service.  
Where treating was done in the fall, after the survey,  
trees treated are shown in the next year's column.*

## TARGHEE - TETON PROJECT

### DEVELOPMENT & TREATMENT OF INFESTATION

### 1946 - 1950

( From Survey & Control Reports )



The epidemic probably started in 1945. In the fall of 1946, after it became apparent that artificial control measures were necessary, the first survey was made. An estimate of 213,000 trees were made, most of which were on the Caribou Forest.

In the spring of 1947 the first control work was undertaken. Funds were not available for complete control and 43,000 trees were treated that spring, all on the Targhee, Teton and Teton National Park lands, in an effort to check the northward spread. The survey that fall showed 106,000 trees in need of treatment, excluding only some of the back country on the Caribou where treatment was not recommended. During the late fall 6,000 trees were treated on the Teton Forest and Teton Park.

In 1948, plans were laid to do a complete control job, except for parts of the Caribou. Funds were received early in the spring and 114,000 trees were treated in the first and only full-scale control job. The fall survey showed a reduction of 75% in new attacks on the areas treated but also uncovered some new areas of infestation. The 1948 fall survey found 67,000 new attacks, including all of the Caribou, where clean-up treatment was proposed as the epidemic there was apparently declining. No control work was done that fall.

#### The 1949 Spring Control Project

Plans for complete cleanup of the infestation were made in 1949 with work to start about May 1. Several separate sets of plans were made and junked before word was received on June 21 that funds were available. Each week of delay necessitated some sacrificing of ground as it became apparent that a full control job was no longer possible. Priorities were set up as reductions were made and the finally executed plans were based on maximum control work on the Teton Forest and Teton Park lands and on the north end of the Targhee, in an attempt to check the advance of the infestation toward Yellowstone Park. The southern fringes of the Caribou infestation were also included in an effort to stop further spread there.

#### Organization

The control project was handled in the same manner as in previous years, i.e. under the direct supervision of the forest supervisors of the forests involved in the control work. Over-all coordination of the work on the project was handled by the Division of Timber Management of the Regional Office. This system had worked well in previous years and was very effective during the 1949 project where quick action was imperative.

The job on each forest was handled by a project supervisor who worked directly under the Forest Supervisor. On the Targhee, Assistant

Forest Supervisor Neal D. Nelson was project supervisor. On the Teton no assistant supervisor was available, and James Heckaday, fire control staff assistant from the Regional Office, was detailed for the job. On the Caribou the work was handled by Assistant Supervisor J. Deloy Hansen.

On the Targhee and Teton forests, where the major part of the control work was done, Assistant Project Supervisors were needed and these jobs were handled by Clair Melvin and Robert Newcomer, Timber Management staff assistants on the Targhee and Teton Forests, respectively.

The abbreviated nature of the project demanded a minimum of time spent in overhead training and the forests went all out in furnishing additional experienced overhead to effectuate a quick-starting, fast-moving job.

Prior to the start of the project a list of detailers available from other forests in the Region was compiled. This list was trimmed very little during the long wait before the project started because the shorter the work period became, the more the need for capable overhead. Twenty-eight such men were kept alerted and rushed to the job when the "go" signal sounded. These men and the pick of the local labor force supplied the additional overhead needed for the project.

#### Camps

The short duration of the project and the need for quick action eliminated any elaborate camp structures. Camps were constructed to provide adequate facilities but were very temporary in nature.

A 25-man centrally located camp handled all of the work on the Caribou.

Three camps were set up on the Targhee, one 50-man camp at Hotel Creek, one 25-man camp at Lyle Springs, and a 10-15 man camp at Porcupine. Toward the end of the project the Lyle Springs camp was moved to Kirkham Hollow to finish out the project.

On the Teton three main camps were established, at Ditch Creek, Jackson, and the Lee Ranger Station. The size of these camps varied from 10 to 30 men. From these camps smaller spike camps were put out as needed as the scattered nature of the infestation over much of the Teton called for small working units. These smaller units functioned much more effectively and economically than the larger setups used the previous year.



### Training

The original plans called for advance training of all overhead and labor assembled for the early control work, followed by immediate group training of new recruits as camps were established. As time passed and the program was reduced it became apparent that the training program would have to be reduced accordingly. This did not necessarily mean that any training would be sacrificed, rather it transferred the bulk of the training from advance group training to on-the-job spot training. With the type of overhead used on the job such a system was possible and it functioned very well to get things moving in a hurry and keep them running smoothly.

Group training was given to overhead as needed who then immediately gave on-the-job training to their crew members, slowly at first and picking up speed as proficiency was gained.

Training officers on each forest followed up this work in order to assure proper standards of performance and maximum output.

### Safety

Each forest launched an aggressive safety campaign at the beginning of the project and followed it through to the end of job. The bulk of the responsibility for a safely conducted job was placed on the individual himself and the overhead emphasized this responsibility in meetings and at regular intervals on the job.

A highly safety-conscious organization resulted.

The primary hazard on the project was the speed with which the program was launched and carried along to completion, but in spite of the hurried nature of the project an excellent record of only one minor lost time accident was attained.

### Treating

Combination spotting-treating crews were used throughout the project except for a few areas which were hot-spotted.

A comparison of accomplishments by the two methods, separate spotting and treating, and combination spotting-treating, made the year before, had shown little difference in cost or effectiveness. The combination method was adopted for the 1949 project because of the speed with which it could be put to work.

With the combination method, crews are organized in much the same manner as in a conventional spotting crew, i.e., chief spotter and

four spotters. The only exceptions are that a compassman lays the string ahead of the crew (and therefore is not held back by the crew), and a packer is added for each crew or two as necessary. The packer follows along behind with the ortho-mix and the pumping equipment ready to come immediately at the call of "bugs!"

For the actual treating process the forests changed over entirely to the use of the "Little Giant" hand operated, stirrup pumps. These pumps are light, easily packed outfits which are better adapted to treating low per acre infestations than the heavier mechanical pumps developed and used with success the previous year. Performance is equal to the mechanical pumps and operation is simpler. They held up well under steady use.

All treating was done by the spraying-standing method using a 1 to 5 or 1 to 6 mix of ortho and fuel oil and inspection of individual trees showed good results.

Due to the short job and the elimination of spotting as a separate operation, no contracting was done.

"Hot spotting", or the location and treating of trees without the use of the gridiron techniques employed with spotting either separately or combined with treating, was tried on several areas of scattered infestation on both the Targhee and Teton Forests. This was necessary because time was not available to gridiron these large areas in the usual way. Reliance for detection of trees and groups of trees was placed on foliage discoloration. By the last week or ten days of the project, between 75 and 100 percent of the trees attacked had begun to turn color and although not 100% effective, some short cut method was required in order to cover these areas.

During this short period, aerial spotting of infested trees was tried and found successful for locating single trees or groups of trees to be treated and also for picking up a few unknown areas of infestation. Aerial photos were used advantageously to spot the locations of the trees. Treating crews then used the same photos to locate the trees on the ground. If it were not for the short period of time between discoloration and emergence, this technique could be expanded to cover much of the project. Most experimentation along this line on areas of scattered infestations where spotting is costly, is planned for next year's project and if possible a helicopter will be tried.

### Results

In spite of many misgivings concerning the outcome of the project, due to the late starting date, the results were gratifying and showed that the control effort was justified.



According to the 1948 fall survey, approximately 170,000 acres of type within the national forests needed treating. Nearly one-third of this area, or a little over 50,000 acres, was covered during the 1949 spring project. On this area, the 1949 survey showed a decrease (weighted average) of 54% in total number of new attacks. This compares to a 75% reduction on treated areas attained in 1948. The difference in degree of reduction may perhaps be due to the late start, for there was partial emergence on some areas before the project was completed. It may also be due, in part, to an infiltration of the new brood from nearby areas which could not be treated during the short project.

#### Fall Control Work

Preliminary survey figures for some units were available early in September and as there was a balance of deficiency funds remaining from the spring project, fall control projects were undertaken on the Targhee and Teton Forests. Additional regular Forest Pest Control funds were allotted to carry on the work after September 30.

On the Targhee, work was done from a single 30-man camp which started September 12 but was shut down October 20 after a period of stormy weather had necessitated a prolonged layoff of the men. During this period one unit was completed and work was started on another. 5827 acres of host type were covered and 3433 trees treated.

The Teton set up a 25-man camp on September 13 and treated until November 12. One unit was completed and work was started on two others. 7383 acres were covered and 3324 trees treated. Spotting was kept a separate operation from treating and as the labor turnover was heavy, some contracting of the treating was done.

The work on both forests was done by crews and overhead recruited locally.

The work on the Teton disclosed the fact that the infestation there was over-running the survey figures by as much as 100%. It is unlikely that the survey would be in error by that great a percentage because many trained men were used and an adequate check was made on their work. After some study of the matter by the Bureau of Entomology and Plant Quarantine personnel the cause of the error was ascribed to the early date of the survey with subsequent parent adult attacks because of abnormally good fall weather conditions. The discovery of this error in the survey led to the readjustment of the survey figures upward by 30% as a necessary safety measure. This matter has been discussed in previous correspondence (our letter of 12/2/49) and in view of the conditions we believe such action was fully justified.



### Costs

Costs for the project are shown on the photostated copy of our Form FM-IC-I which has been included as a part of this report. Figures for spring and fall treating have been combined and the totals shown are total expenditures for the project from the various allotments. All costs are included except (1) survey costs; (2) H.E.R.F. (purchase of power wagons and jeeps), and (3) purchase of ortho and other supplies made in late September and which will be properly chargeable to next year's project. This includes the purchase of the B-1 camps which we had been renting; however the 1949 project was charged with an amount equaling one year's rental.

The cost of the survey shown is money allotted to the Targhee and Teton Forests to cover salaries and expenses for the National Forest part of the survey as the forests handled the payrolling and purchasing for the Bureau of Entomology during that period. However survey-man days are not included in the total project-man days and therefore the cost of the survey has been shown separately.

The cost per tree averaged \$7.48. This is somewhat higher than our cost estimates submitted for a full-scale project which is natural considering that the short-time project had to bear the full cost of equipment transfers, detailers' travel, a full year's camp rental, etc. which would not have been as great on a per tree basis with a longer project.

### The Payette Engelmann Spruce Project

This epidemic started after a heavy windfall in 1946 in the spruce stands on the Payette National Forest. The beetles quickly built up to epidemic proportions and a heavy loss occurred in standing trees in 1948 and 1949.

A survey of the infestation was made by the Bureau of Entomology in 1948 and control recommended for 1949. Due to the fact that these beetles fly early in the spring, summer and fall control work was recommended.

The project started on the 28th of July and in spite of numerous interruptions due to a bad fire year on the Payette was completed by November 10.

3780 units were treated. This included 1948 and 1949 attacks on trees, stubs, or stumps, windfalls and tops.

The project was efficiently handled by regular Payette and locally recruited personnel.

Due to the abundance of woodpecker activity noticed on the 1947 and 1948 attacked trees it was decided to treat standing trees only below snow line. No special equipment was needed for the job and spraying of all trees, windfalls etc. was done mainly with Little Giant pumps equipped with short hose and extensions and adjustable nozzles suitable for spraying either a solid stream or a scattered spray, depending on the need.

During the project it was discovered that the heavier barked, large green trees (1949 attacks) could be successfully treated only if a heavy, even coat of oil was applied. A five to one mix of ortho and diesel oil was used.

There were some additional areas of infestation located which the survey had not disclosed. The reason for this was of course that the new 1949 attacks had been made since the survey, but the increase in new attacks was not as great as had been anticipated. A good deal of reconnaissance work was necessary in order to define the areas where treatment was to be done. Several of the better men were assigned to this work and a great deal of labor was saved by this technique because the control crews could then be relatively certain of what lay ahead.

Costs for the project were shown separately on the Form FM-IC-1, which follows. Results will be unknown until the 1950 fall survey or reconnaissance is made, but from all preliminary observations the control work done appears to have been fairly successful.

#### Other Control Work

The only other control work done in the Region during 1949 was a small Engelmann spruce bark beetle control project on the Manti Forest. This infestation was heavy, 1895 trees, windfalls, tops etc. being treated on approximately 85 acres of host type. Fall reconnaissance indicated good results were obtained and no fall survey was necessary. The areas will be examined at intervals this year to determine whether any follow-up is needed.

#### Needs for 1950

Our "S, CONTROL, Insect" letter of 12/2/49 covered the Regional situation in adequate detail. All of the approved smaller projects



are now in an indefinitely postponed status due to the possible fund shortage for the Targhee-Teton project and will of course be eliminated if sufficient funds are not made available for complete control of the Targhee-Teton project.

Very truly yours,

G. J. OLSEN, Regional Forester

W. L. POOR

By

# INSECT CONTROL SUMMARY

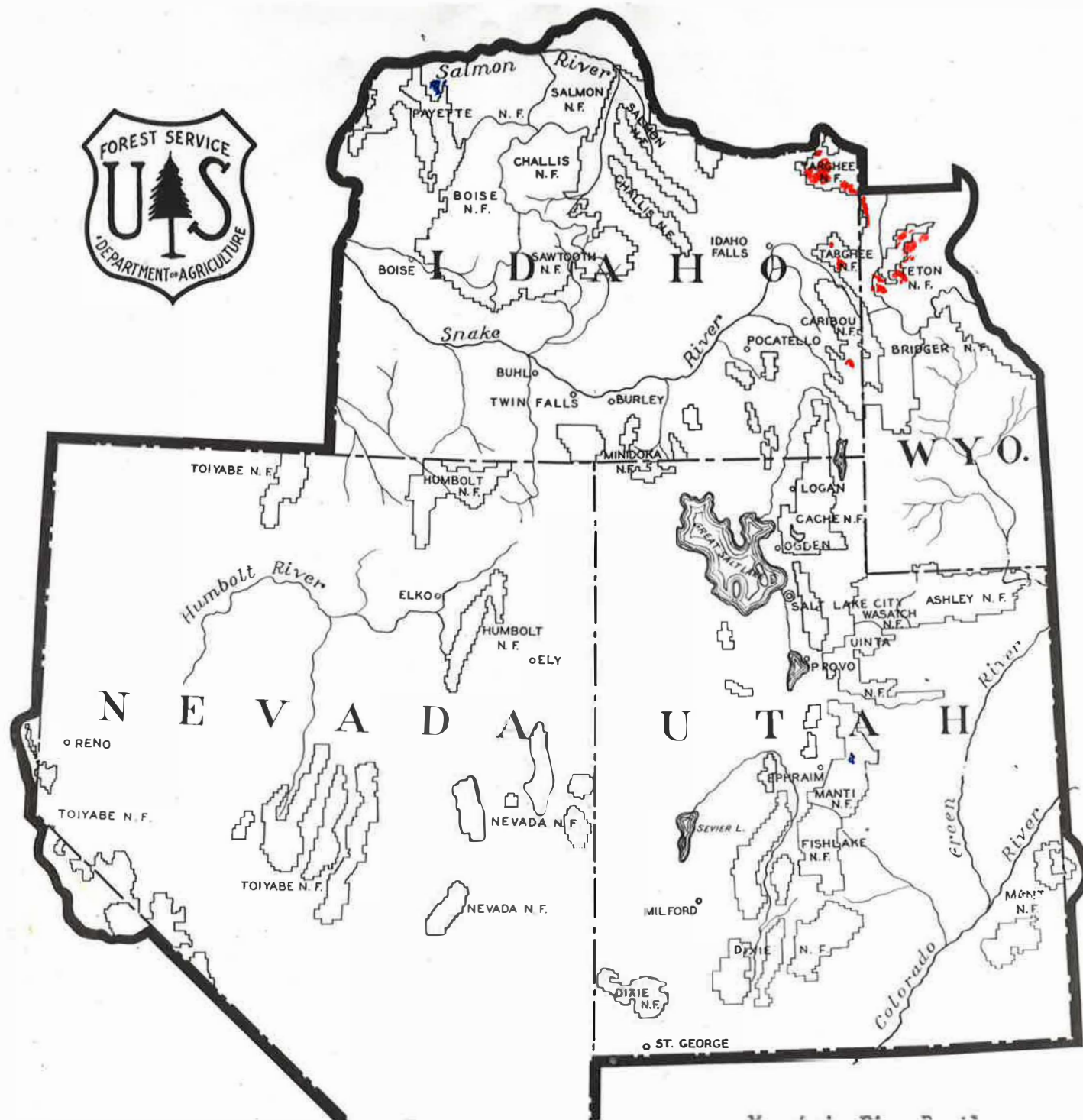
ALL NATIONAL FOREST  
REGION 4

Forest	Duration of Project (incl. dates)	Tree Species Affected	Insect Responsible	Method Followed	Acres Treated	Trees Treated	Per- cent Trees Felled	Expenditures					Total Cost per Tree	Total Cost per Acre	Oil Used Gal. Per Tree	No. Man Days Used	Cost per Project Man-Day	Percent Reduction Obtained	
								948	048	(Deficiency) 056	Contrib- uted Time and Expenses (18)	Total Cost of Project							
(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	
Caribou (Barghae (Teton	6/22 to 7/22 & 9/9 to 11/12	Lodgepole Pine	Dendroctonus monticolae	Spraying standing (ortho-mix)	50,752	21,472	0												
								Actual cost of project	\$ 8,890	\$21,790	\$126,600	\$ 3,320	\$160,600	\$7.48	\$ 3.16		5734	\$28.00	54% on treated units
								Additional expenditures											
								1. Survey cost			10,415		10,415						
								2. H.E.S.F.			11,000		40,675						
			3. Purchase of supplies & equipment for next year's work			29,675			31,840		31,840							Project as a whole re- duction approx. 25%)	
			Total expenditures Barghae-Teton	Project				\$38,565	\$21,790	\$179,855	\$ 3,320	\$243,530							

(Project as a whole reduction approx. 25%)  
  
Scout units unknown until 1950 fall survey  
  
100% (reduced to endemic condition)



TREATED AREAS IN PINE BARK BEETLE INFESTATIONS  
REGION 4 - 1949



THE EPIDEMIC OCCURRENCE OF PINE BARK BEETLES IN  
REGION 4 - 1949

